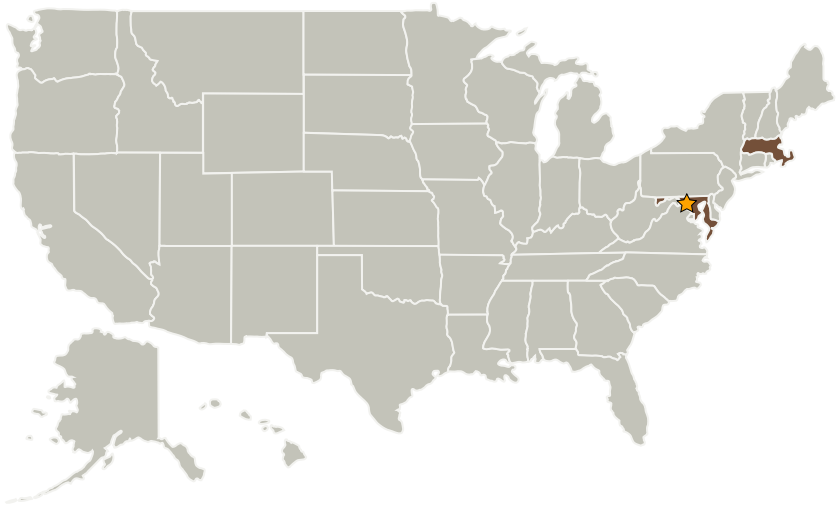
A High Cross-Pol Isolation Multi-Frequency Antenna for Cloud and Precipitation Research, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

Remote Sensing Solutions will evaluate the critical parameters and generate a design approach for a portable, all-weather multi-wavelength antenna system suitable for supporting GPM ground validation and for use in other NASA cloud and precipitation research programs. The antenna system will have a number of unique characteristics including high gain (approximately 1 deg half-power beam width) and matched antenna beam shapes. The antenna will support multiple frequencies used for cloud and precipitation sensing. The basic design will provide Ku-band (14 GHz) and Ka-band (35 GHz) channels that can support a variety of polarization and absorption-based rain retrieval algorithms. An additional 95 GHz channel will be considered to augment the cloud-sensing capabilities of the antenna and to allow particle sizing in clouds. The antenna will have extremely high cross-polarization isolation suitable for identifying ice cloud particle habit.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Remote Sensing Solutions, Inc.	Supporting Organization	Industry	Barnstable, Massachusetts

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Maryland	Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.2 Radio Frequency
    - TX05.2.6 Innovative Antennas